

AGENDA
U.S. GEOLOGICAL SURVEY
KARST INTEREST GROUP WORKSHOP
May 27-29, 2008
Bowling Green, Kentucky
Western Kentucky University Campus

Tuesday, May 27

Registration

Start at 8:00 am-- All day – pick up name tags and proceedings

Welcome and Introductions

8:45 – 9:20 Eve Kuniansky, U.S. Geological Survey, Karst Interest Group Coordinator; Dr. Gary Ransdell, President of Western Kentucky University; and Mr. Pat Reed, Superintendent of Mammoth Cave National Park

National Programs

9:20 – 9:40 Overview of National Park Service policy for cave and karst management - by Dale Pate, National Park Service

9:40 – 10:00 National Cave and Karst Research Institute's Karst Information Portal - by Spencer Fleury, National Cave and Karst Research Institute

10:00 – 10:40 **BREAK**

Karst Mapping

10:40 – 11:00 Karst regions of the world (KROW): Global karst datasets and maps to advance the protection of karst species and habitats worldwide - by Emily Hollingsworth and Van Brahana, Geology Department, University of Arkansas; and Ethan Inlander and Michael Slay, The Nature Conservancy, Arkansas

11:00 – 11:20 Characterizing regional karst types under the framework of the new National Karst Map - by David J. Weary, Daniel H. Doctor, Jack B. Epstein, and Randall C. Orndorff, U.S. Geological Survey

11:20 – 11:40 A karst aquifer map for the United States—Is it possible? - by Daniel H. Doctor, David J. Weary, Jack B. Epstein, Randall C. Orndorff, U.S. Geological Survey

11:40 – 1:00 **LUNCH ON YOUR OWN**

Karst Aquifer Systems

1:00 – 1:20 Tectonic control of hypogene speleogenesis in the southern Ozarks--Implications for NAWQA and beyond - by Rodney Tennyson, Jim Terry, Van Brahana, Phil Hays, and Erik Pollock - presented by Van Brahana, Geology Department, University of Arkansas

1:20– 1:40 Hydrologic characterization of a karst spring in north-central Arkansas - by Rheannon M. Scheiderer and Joel M. Galloway, U.S. Geological Survey

1:40 – 2:00 Analyses of methods for estimating continuous flow from Upper Floridan Aquifer springs - by Nicasio Sepúlveda, U.S. Geological Survey

2:00 – 2:40 BREAK

Natural Resources and Karst Ecosystems

2:40 – 3:00 The effects of land use change on an Ozark cave system : A paired study of Civil War and Copperhead Caves - by Jonathan A. Gillip, Phillip D. Hays, and Joel M. Galloway, U.S. Geological Survey

3:00 – 3:20 Karst water resources in southwest China: Case study from the east plateau, Mengzi and Kaiyuan Counties, Yunnan, China - by Chris Groves¹, Jiang Yongjun^{2,1}, Pat Kambesis¹, Yuan Daoxian^{2,1} Amelia Chung^{3,1}
¹China Environmental Health Project, Hoffman Environmental Research Institute, Department of Geography and Geology, Western Kentucky University;
²Institute of Karst and Rehabilitation of Rock Deserts, Department of Geographical Sciences, Southwest University of China, Chongqing, China;
³International Institute of Rural Reconstruction, Kunming, Yunnan, China

3:20 – 3:40 Thermal infrared mapping of coastal aquifer seeps and associations between seeps and coastal habitats - by Ellen Raabe, U.S. Geological Survey and Ela Bialkowska-Jelinska, Jacobs Technology

3:40 – 4:00 Effects of lock and dam Number Six on aquatic ecosystems in Mammoth Cave National Park - by Rick Olson, Mammoth Cave National Park

4:20 – 7:00 **Go to dinner and get carpools together for driving to MAMMOTH CAVE -(provide maps for meeting at 7 pm at Park)**

7:00 – 10:00 **OPTIONAL TOUR OF MAMMOTH CAVE - lead by Rickard Toomey**

Wednesday, May 28

Geochemistry /Contaminant Transport

8:00 – 8:20 Storm period fine sediment transport in Logsdon River, Turnhole Spring Basin, Mammoth Cave, Kentucky - by Stephen T. Kenworthy, Dept. of Geography and Geology, Western Kentucky University

8:20 – 8:40 Water quality in selected carbonate aquifers of the United States 1993-2005 - by Bruce D. Lindsey, Marian P. Berndt, Brian G. Katz, Ann F. Ardis, and Kenneth A. Skach, U.S. Geological Survey

8:40 – 9:00 Effect of focused recharge on the geochemistry of Barton Springs, Edwards Aquifer, central Texas during base-flow conditions - by Barbara Mahler and MaryLynn Musgrove, U.S. Geological Survey

9:00 – 9:20 An overview of the geochemistry of Edwards aquifer ground water in south-central Texas - by MaryLynn Musgrove, Lynne Fahlquist, and Natalie Houston, U.S. Geological Survey

9:20 – 10:00 BREAK

- 10:00 – 10:20 The role of free-living and attached bacteria in processing contamination in karst aquifers - by Tom Byl, U.S. Geological Survey and Tennessee State University; Kelly Ray, Chad Walden, Valetta Watson, and Roger Painter, Tennessee State University
- 10:20 – 10:40 Characterization of bacteria and geochemistry of springs in Nashville, Tennessee - by Patrice Armstrong, Carlton Cobb, Brandon Cobb, student interns, U.S. Geological Survey and Tennessee State University; Jennifer Stewart-Wright, Tennessee State University; and Tom Byl, U.S. Geological Survey and Tennessee State University
- 10:40 – 11:00 Conduit matrix interaction and the rate limiting step of contaminant transport in karst - by Kurt J. McCoy, Allen M. Shapiro, and Mark D. Kozar, U.S. Geological Survey Presented by Mark Kozar
- 11:00 – 11:20 Assessing age distribution and contaminant movement in ground water in the contributing recharge area to a public supply well in the karstic Upper Floridan Aquifer - by Brian G. Katz, Christy A. Crandall, W. Scott McBride, Patty A. Metz, and Sandra M. Eberts, U.S. Geological Survey
- 11:20 – 1:00 **LUNCH ON YOUR OWN**
- Numerical Modeling***
- 1:00 – 1:20 Modeling ground-water flow and solute transport in karst with lattice Boltzmann methods - by Michael C. Sukop, Shadab Anwar, and Jeff S. Lee, Dept. of Earth Sciences, Florida International University; and Kevin J. Cunningham and Christian D. Langevin, U.S. Geological Survey
- 1:20 – 1:40 Simulation of turbulent ground-water flow with MODFLOW-2005—Overview by Eve L. Kuniansky, Keith J. Halford, and W. Barclay Shoemaker, U.S. Geological Survey
- 1:40 – 2:00 Effects of turbulence on hydraulic heads and parameter sensitivities in preferential ground-water flow layers - by W. Barclay Shoemaker and Eve L. Kuniansky, U.S. Geological Survey
- 2:00 – 2:20 Simulation of ground-water flow in a fractured rock karst aquifer, Shenandoah Valley, Leetown, West Virginia - by Mark D. Kozar and Kurt J. McCoy, U.S. Geological Survey
- 2:20 – 3:00 **BREAK**
- Miscellaneous Topics in Modeling, Geophysics, and National Programs***
- 3:00 – 3:20 The value of single-well tracer studies for characterizing karst sites - by Tarra M. Beach, Vanderbilt University; Michael Bradley, U.S. Geological Survey; Roger Painter, Tennessee State University; and Tom Byl, U.S. Geological Survey and Tennessee State University
- 3:20 – 3:40 GIS and spatial statistical methods for determining sinkhole potential in Frederick Valley, Maryland - by Katarina Z. Doctor, George Mason University
- 3:40 – 4:00 Geophysical analysis of the Salmon Peak Formation near Amistad Reservoir Dam, Val Verde County, Texas, and Coahuila, Mexico, March 2006, to aid in piezometer placement - by Gregory P. Stanton, Wade H. Kress, Andrew P. Teeple, Michael L. Greenslate, and Allan K. Clark, U.S. Geological Survey

4:00 – 4:20 National Cave and Karst Research Institute: Partner for the USGS by Penny Boston, New Mexico National Institute of Mining and Technology and George Veni, National Cave and Karst Research Institute

4:20 – 6:20 **POSTER SESSION**

Thursday, May 29

8:00 – 5:00 Field Trip to Karst Features of the Mammoth Cave Area, Kentucky NOTE: BUS LEAVES FROM THE HAMPTON INN PARKING LOT.

Poster Session Titles

Mammoth Cave International Center for Science and Learning - by Rickard S. Toomey III and Shannon Trimboli, Western Kentucky University and Mammoth Cave National Park; Blaine Ferrell, Western Kentucky University; Bob Ward and Mike Adams, Mammoth Cave National Park

Estimating recharge to heterogeneous fractured-rock and karst aquifer systems in the Shenandoah Valley of Virginia and West Virginia - by George E. Harlow, Jr., David L. Nelms, Richard M. Yager, Mark D. Kozar, Ward E. Sanford, and Roger M. Moberg, U.S. Geological Survey

Impact of 1998-2002 drought on the karst aquifers of Clarke County in the Shenandoah Valley of Virginia - by David L. Nelms and Roger M. Moberg, U.S. Geological Survey

Ground-water/surface-water relations and water quality within the Mammoth Spring watershed, Dixie National Forest, Garfield County, Utah - by Lawrence E. Spangler, U.S. Geological Survey

Updating the USGS Karst Interest Group website by converting it into a dynamic web application - by Bradley D. Garner and Barbara J. Mahler, U.S. Geological Survey

Simulations of ground-water flow and particle pathline analysis in the contributing recharge area of a public-supply well in Temple Terrace, Tampa Bay region, Florida - by Christy A. Crandall, Leon J. Kauffman, and Brian G. Katz, U.S. Geological Survey

Performance evaluation of the MODFLOW-2005 conduit flow process applied to a karst aquifer underlying west-central Florida - by Melissa E. Hill and Angel Martin, Southwest Florida Water Management District

Ammonia oxidation by bacteria collected from a karst-bedrock well - by Kelly Ray and Roger Painter, Tennessee State University and Tom Byl, U.S. Geological Survey and Tennessee State University

Wetland removal of nutrients and pollution from a mixed sewer and karst spring system in Nashville, Tennessee - by Carlton Cobb, Jameka Johnson, Brandon Cobb, and Patrice Armstrong, Tennessee State University and U.S. Geological Survey; Lonnie Sharpe, Tennessee State University and Tom Byl, U.S. Geological Survey and Tennessee State University

Are karst bedrock aquifers at greater risk from alternative alcohol-fuel mixes compared to regular gasoline? - by Baibai Kamara, Carlton Cobb, Keyshon Bachus, Roger Painter, and Lonnie Sharpe, Tennessee State University; Tom Byl, U.S. Geological Survey and Tennessee State University

Residence time distribution for karst derived from independent gamma distributions of tracer travel distance and linear velocity - by Roger Painter and Valetta Watson, Tennessee State University

Episodic elevated coliform in vadose-zone water within Mammoth Cave National Park, Kentucky - by Rickard S. Toomey III, Western Kentucky University and Mammoth Cave National Park; Rick Olson, Mammoth Cave National Park ; and Bob Ward, Mammoth Cave National Park

Construction and use of a fractured-rock simulator to test horizontal borehole flow-measuring technologies - by Randall Bayless, U.S. Geological Survey

Collection of bathymetric data along two reaches of the Lost River within Bluespring Cavern near Bedford, Lawrence County, Indiana, July 2007 - by David C. Lampe, Scott E. Morlock, U.S. Geological Survey

A Multi-Tool Geophysical and Hydrogeological Investigation of a Karst Aquifer System, Cibolo Canyon Development Area, Bexar County, Texas by Sachin D. Shah, Bruce D. Smith, Allan K. Clark, and Wade H. Kress, U.S. Geological Survey